AMENDMENT TO THE CLAIMS

1. (Currently Amended) ~~A first transceiver for coupling a first functional device to a serial bus that extends to a second transceiver, the first transceiver~~ An apparatus, comprising:

a first line receiver ~~receiving second serial data and second control primitives over the serial bus from the second transceiver, the second control primitives representing a sensed~~ coupled to receive first physical layer quality data ~~sensed at the second transceiver~~; and

a first line driver ~~receiving first serial data from the first functional device and providing the first serial data to the serial bus; the first line driver having a first transmitted physical layer quality that is controllable by a first control input of the line driver~~ coupled to transmit control primitive data that includes an adjustable pre-emphasis and that has a response to the first physical layer quality data ~~; and~~

~~a first controller receiving the second control primitives from the first line receiver, the first controller providing a control output to the first control input to control the first transmitted physical layer quality at the first line driver as a function of the sensed physical layer quality~~.

2. (Currently amended) The ~~first transceiver~~ apparatus of Claim 1 wherein ~~the first controller controls~~ the ~~sensed~~ first physical layer quality data is sensed in real time.

3. (Currently amended) The ~~first transceiver~~ apparatus of Claim 1 wherein ~~the first controller~~ the first physical layer quality data is dynamically calibrated ~~calibrates the sensed physical layer quality~~.

4. (Currently amended) The ~~first transceiver~~ apparatus of Claim 1 wherein the ~~transmitted~~ first physical layer quality data includes amplitude.

5. cancelled.

6. cancelled.

7. (Currently amended) The ~~first transceiver~~ apparatus of Claim 1 wherein the ~~first transceiver~~ apparatus is mounted in ~~the first functional device which is~~ a storage device, and the apparatus couples ~~transceiver couples~~ the ~~disc drive~~ storage device to a host computer system.

8. (Currently amended) The ~~first transceiver~~ apparatus of Claim 1 wherein the ~~first transceiver~~ apparatus is mounted in ~~a first functional device which is~~ a host computer system, and the apparatus ~~transceiver~~ couples the host computer system to a storage device.

9. (Currently amended) The ~~first transceiver~~ apparatus of Claim 1 wherein the apparatus couples to a serial bus that comprises two pairs of conductors.

10. (Currently amended) ~~A second transceiver for coupling a second functional device to a serial bus that extends to a first transceiver, the second transceiver~~ An apparatus, comprising:

a ~~second~~ line receiver ~~receiving first serial data over the serial bus from the first transceiver~~ coupled to receive physical layer quality data ; and

a ~~second~~ line driver ~~receiving second serial data from the second functional device and providing the second serial data to the serial bus~~ coupled to transmit control primitive data that includes an indication of frequency rolloff and that is responsive to the physical layer quality data. ~~; and~~

~~a second quality sensing circuit sensing a received physical layer quality, the second quality sensing circuit generating second control primitives representing the received physical layer quality, the second control primitives coupling to the second line driver for transmission over the serial bus to the first transceiver.~~

11. (Currently amended) The ~~second transceiver~~ apparatus of Claim 10 wherein the ~~second control primitives are~~ control primitive data is generated in real time.

12. (Currently amended) The ~~second transceiver~~ apparatus of Claim 10 ~~wherein the~~ and further comprising:

a second quality sensing circuit that comprises:

a physical layer quality sensor sensing a ~~the~~ received first signal;

a quality standard; and

a quality compare circuit comparing the received first signal to the quality standard and providing the second control primitives.

13. (Currently amended) The ~~second transceiver~~ apparatus of Claim 10 wherein the ~~second control primitives~~ physical layer quality data include an indication of amplitude.

14. cancelled.

15. cancelled.

16. (Currently amended) The ~~second transceiver~~ apparatus of Claim 10 wherein the ~~second transceiver~~ line receiver is mounted in a storage device and couples the storage device to a host computer system.

17. (Currently amended) The ~~second transceiver~~ apparatus of Claim 10 wherein the ~~second transceiver~~ line receiver is mounted in a host computer system and couples the host computer system to a storage device.

18. (Currently amended) The ~~second transceiver~~ apparatus of Claim 10 wherein the line receiver and line driver couple to a serial bus that comprises two pairs of conductors.

19. (Currently Amended) ~~A control system for controlling a received physical layer quality of user data transmitted from a first end of a serial bus and received at a second end of the serial bus, the control system~~ An apparatus, comprising:

a first line driver transmitting user data and primitives at ~~the~~ a first end of a serial bus, the first line driver having a control input that controls a ~~the~~ transmitted physical layer quality at the first end;

~~a physical layer quality sensor sensing the received physical layer quality at the second end and generating a sensed quality output;~~

~~a quality standard, and a comparator receiving the quality standard and the sensed quality output, the comparator generating control primitives representative of a difference between the quality standard and the sensed quality output~~ a quality sensing circuit that makes a comparison of a quality standard to a physical layer quality that includes an amplitude and a frequency rolloff, and that generates control primitives representative of the comparison;

a second line driver at the second end of the serial bus transmitting the control primitives at the second end, and a first line receiver at the first end receiving the control primitives to provide closed loop control of the received physical layer quality.

~~; and~~

~~a controller coupled to the first line receiver and generating a control output as a function of the control primitives, and the control output is fed forward to the control input to provide closed loop control of the received physical layer quality.~~

20. (Currently amended) ~~The control system~~ A system comprising the apparatus of Claim 19 ~~wherein the control system includes~~ and further comprising a second ~~control system~~ apparatus, substantially the same as the ~~control system~~ apparatus of Claim 19, the second ~~control system~~ apparatus controlling a second physical layer quality in a direction on the serial bus that is

opposite to the direction of control of the ~~control system~~ apparatus of Claim 19, to provide bi-directional physical layer quality control on the serial bus.

21.cancelled.

22. cancelled.

23. (Currently amended) The ~~control system~~ apparatus of Claim 19 wherein the serial bus comprises two pairs of conductors.

24. (Currently amended) The ~~control system~~ apparatus of Claim 19 wherein the serial bus carries user data between a first functional device and a second functional device.

25. (Currently amended) The ~~control system~~ apparatus of Claim 24 wherein the first functional device is a storage device and the second functional device is a host computer system.